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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : James R. VEALE et al.

Group Art Unit : 1743

Appl. No. : 10/684,412

Examiner : A. SODERQUIST

Filed : October 15, 2003

Confirmation No. : 4403

For : SYSTEM AND METHOD FOR AUTOMATED HEADSPACE  
ANALYSIS

**SUPPLEMENTAL COMPLETION OF RECORD**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Service Window, Mail Stop AMENDMENT  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

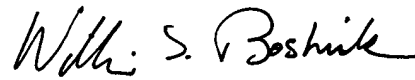
Sir :

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §§1.97-1.98, and supplemental to the completion of record dated December 2, 2005, Applicants hereby submit a copy of a International Search Report dated October 26, 2005, with respect to patent family member International Patent Application No. PCT/US2004/32302. This International Search Report was previously brought to the Examiner's attention; however, in the event that the Examiner did not receive a copy of the International Search Report, Applicants are providing herewith another copy of the same.

Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully Submitted,  
James R. VEALE et al.

William S. Boshnick  
Reg. No. 44,550

A handwritten signature in cursive script, appearing to read "William S. Boshnick".

Bruce H. Bernstein  
Reg. No. 29,027

January 25, 2006  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 Roland Clarke Place]  
Reston, VA 20191  
(703) 716-11912

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
ARNOLD TURK  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191

**RECEIVED**

OCT 27 2005

## PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference P24185	Date of mailing (day/month/year)
International application No. PCT/US04/32302	International filing date (day/month/year) 13 October 2004 (13.10.2004)
Applicant LIGHTHOUSE INSTRUMENTS, LLC.	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70.

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

**4. Reminders**

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/ US  
Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
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Facsimile No. (703) 305-3230

Authorized officer

RICHARD CRISPINO

Telephone No. 571 272-1700

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
ARNOLD TURK  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191

## PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing  
(day/month/year)

26 OCT 2005

Applicant's or agent's file reference  
P24185

**FOR FURTHER ACTION** See paragraphs 1 and 4 below

International application No.  
PCT/US04/32302

International filing date  
(day/month/year) 13 October 2004 (13.10.2004)

Applicant  
LIGHTHOUSE INSTRUMENTS, LLC.

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

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**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70.

**For more detailed instructions, see the notes on the accompanying sheet.**

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

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Commissioner for Patents  
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Authorized officer

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# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P24185	<b>FOR FURTHER ACTION</b> <div style="float: right; font-size: small;">see Form PCT/ISA/220 as well as, where applicable, item 5 below.</div>	
International application No. PCT/US04/32302	International filing date ( <i>day/month/year</i> ) 13 October 2004 (13.10.2004)	(Earliest) Priority Date ( <i>day/month/year</i> ) 15 October 2003 (15.10.2003)
Applicant LIGHTHOUSE INSTRUMENTS, LLC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the Report**

a. With regard to the **language**, the international search was carried out on the basis of:



the international application in the language in which it was filed.



a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/32302

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01D 21/00; G01J 5/02; G01N 35/00, 02, 33/00, 21/62

US CL : 73/866.5; 250/223B, 343; 422/662-65, 67; 436/43, 47, 127, 133-134, 136, 171

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 73/866.5; 250/223B, 343; 422/662-65, 67; 436/43, 47, 127, 133-134, 136, 171

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,315,108 A (GROSS) 24 May 1994, see col. 1, lines 37-42.	1-2, 7, 11, 17
Y	US 5,473,161 A (NIX et al.) 05 December 1995, see col. 3.	1-2, 7, 11, 17
Y	US 6,055,876 A (KATO) 02 May 2000, see col. 1, lines 37-44 and col. 5, lines 28-67.	1-2, 7, 11, 17
Y	WO 96/02835 A1 (RAE) 01 February 1996, see entire document.	1-2, 7, 11, 17

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

### \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

14 September 2005 (14.09.2005)

Date of mailing of the international search report

26 OCT 2005

Name and mailing address of the ISA/US

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Commissioner for Patents  
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Authorized officer

RICHARD CRISPINO

Telephone No. 571 272-1700

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/32302

## Continuation of B. FIELDS SEARCHED Item 3:

USPAT; USOCR: bottle, vial, container, headspace, head, space, inspect, laser, analyzer, detect, detector, detection, detecting, determine, determining, determination, measure, measuring, measurement, test, testing, analyze, monitor, monitoring, sense, sensing, sensor, analysis, gas, gaseous, vapor, vaporous, volatile, semivolatile, oxygen, co2, carbon, dioxide.

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:  
ARNOLD TURK  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191

# PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) **26 OCT 2005**

Applicant's or agent's file reference

**FOR FURTHER ACTION**

See paragraph 2 below

P24185

International application No.

International filing date (day/month/year)

Priority date (day/month/year)

PCT/US04/32302

13 October 2004 (13.10.2004)

15 October 2003 (15.10.2003)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): G01D 21/00; G01J 5/02; G01N 35/00, 02, 33/00, 21/62 and US Cl.: 73/866.5; 250/223B, 343; 422/662-65, 67; 436/43, 47, 127, 133-134, 136, 171

Applicant

LIGHTHOUSE INSTRUMENTS, LLC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

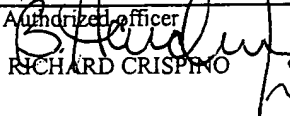
If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US  
Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
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Facsimile No. (703) 305-3230

Date of completion of this opinion  
14 September 2005 (14.09.2005)

Authorized officer  
  
RICHARD CRISPINO  
Telephone No. 571 272-1700



WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US04/32302

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
- ☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
- ☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
- ☐ filed together with the international application in electronic form.
- ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US04/32302

**Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims <u>1-38</u>	YES
	Claims <u>NONE</u>	NO
Inventive step (IS)	Claims <u>3-6, 8-10, 12-16, 18-38</u>	YES
	Claims <u>1-2, 7, 11, 17</u>	NO
Industrial applicability (IA)	Claims <u>1-38</u>	YES
	Claims <u>NONE</u>	NO

**2. Citations and explanations:**

Claims 1-38 meet the criteria set out in PCT Article 33(2), because the prior art does not teach or fairly suggest the claimed subject matter.

Claims 3-6, 8-10, 12-16, 18-38 meet the criteria set out in PCT Article 33(3), because the prior art does not teach or fairly suggest the claimed subject matter.

Claims 1-38 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

Claims 1-2, 7, 11 and 17 lack Inventive Step under PCT Article 33(3) as being obvious over Kato (US 6,055,876) in view of Nix (US 5,473,161), Rae (WO 96/02835) or Gross (US 5,315,108).

In the patent Kato teaches a non-contact type inspection system for inspecting sample conveyed on a conveyer system. Column 1, lines 37-44 teach that the device is used for inspecting glass or plastic container such as ampoules or vials containing chemicals food or drink to determine if a foreign matter is contained therein. The device uses a light source and detector mounted on rotatable tables (14a, 14b) which can be used to create a situation that the containers can be inspected as if they were still (column 5, lines 28-67. Column 11, lines 14-20) teach that other types of light or radiation can be used to inspect the containers. Kato does not teach the light being from a laser.

In the patent Nix teaches a method for testing (inspecting) the amount of carbon dioxide (carbonation) in a container having a carbonated beverage therein. Column 3, teaches the use of a laser in the measurement of the carbon dioxide in the containers.

In the published application Rae teaches the analysis of the headspace of a sealed container (vial) with a laser. The containers have chemicals (pharmaceuticals) therein and the headspace is being analyzed for the presence of oxygen, which can be detrimental to the chemicals in the vials.

In the patent Gross teaches a device for acting upon moving containers that is substantially similar to the Kato device. The device uses a laser to inspect the containers with as high a frequency as possible (column 1, lines 37-42).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the lasers of Nix, 'Rae or Gross into the inspection device of Kato because of the several uses taught by Nix, Rae and Gross for inspection of moving containers.